

Claims

- [c1] A method of making a thermoformable tubular liner for use in a prosthetic appliance, comprising the steps of:
- preparing a negative cast from a patient's residual limb;
 - preparing a positive cast from said negative cast;
 - placing a thermoformable tubular liner over said positive cast;
 - heating said positive cast and thermoformable tubular liner in an oven for a predetermined amount of time at a predetermined temperature so that said thermoformable tubular liner acquires a new geometry;
 - removing said cast and thermoformable tubular liner from said oven and allowing said cast and thermoformable tubular liner to cool to room temperature;
 - removing said thermoformable tubular liner from said cast;
 - an interior surface of said thermoformable tubular liner conforming to the shape of said positive cast;
 - said thermoformable tubular liner exhibiting elasticity when cooled to room temperature and returning to its new geometry when stretched and released at room temperature;
 - said thermoformable tubular liner adapted to be stretched and fitted over a residual limb;
 - whereby said thermoformable tubular liner remains on said residual limb even as said residual limb shrinks during the day.
- [c2] The method of claim 1, wherein said predetermined amount of time is about thirty minutes.
- [c3] The method of claim 2, wherein said predetermined temperature is about ninety to one hundred degrees Celsius.
- [c4] The method of claim 1, further comprising the step of preheating said positive cast in said oven for a predetermined amount of time at a predetermined temperature prior to said step of placing said thermoformable tubular liner over said positive cast.
- [c5] The method of claim 4, wherein said predetermined amount of time of said

preheating step is about two to three hours.

[c6] The method of claim 4, wherein said predetermined temperature of said preheating step is about ninety to one hundred degrees Celsius.

[c7] The method of claim 1, further comprising the step of formulating said thermoformable tubular liner by mixing triblock copolymers of the styrene, ethylene styrene type with mineral oils at a predetermined concentration.

[c8] The method of claim 7, wherein said predetermined concentration is about 200 to 400 parts of mineral oil per 100 parts of polymer.

[c9] The method of claim 1, further comprising the step of applying a fabric in overlying relation to an exterior surface of said liner.

[c10] The method of claim 9, wherein the step of applying the fabric is performed after the step of placing the thermoformable tubular liner over the positive cast and prior to the step of heating the positive cast and thermoformable tubular liner in the oven.

[c11] A method of making a thermoformable tubular liner for use in a prosthetic appliance, comprising the steps of:
preparing a negative cast from a patient's residual limb;
preparing a positive cast from said negative cast;
placing a thermoformable tubular liner over said positive cast;
formulating said thermoformable tubular liner by mixing triblock copolymers of the styrene, ethylene styrene type with mineral oils at a predetermined concentration;
heating said positive cast and thermoformable tubular liner in an oven for a predetermined amount of time at a predetermined temperature;
removing said cast and thermoformable tubular liner from said oven and allowing said cast and thermoformable tubular liner to cool to room temperature; and
removing said thermoformable tubular liner from said cast;
whereby an interior surface of said thermoformable tubular liner conforms to the shape of said positive cast.

[c12]

A method of making a thermoformable tubular liner for use in a prosthetic appliance, comprising the steps of:

- preparing a negative cast from a patient's residual limb;
- preparing a positive cast from said negative cast;
- placing a thermoformable tubular liner over said positive cast;
- formulating said thermoformable tubular liner so that it has elastomeric qualities and exhibits a durometer of 40 to 60 on the "00" scale;
- heating said positive cast and thermoformable tubular liner in an oven for a predetermined amount of time at a predetermined temperature;
- removing said cast and thermoformable tubular liner from said oven and allowing said cast and thermoformable tubular liner to cool to room temperature; and
- removing said thermoformable tubular liner from said cast;

whereby an interior surface of said thermoformable tubular liner conforms to the shape of said positive cast.

[c13]

A method of making a thermoformable tubular liner for use in a prosthetic appliance, comprising the steps of:

- preparing a negative cast from a patient's residual limb;
- preparing a positive cast from said negative cast;
- heating a thermoformable tubular liner in an oven for a predetermined amount of time at a predetermined temperature so that said thermoformable tubular liner becomes pliable and acquires a new geometry;
- removing said thermoformable tubular liner from said oven and placing said thermoformable tubular liner over said positive cast and allowing said thermoformable tubular liner to cool to room temperature;
- removing said thermoformable tubular liner from said positive cast;
- an interior surface of said thermoformable tubular liner conforming to the shape of said positive cast;
- said thermoformable tubular liner exhibiting elasticity when cooled to room temperature and returning to its new geometry when stretched and released at room temperature;
- said thermoformable tubular liner adapted to be stretched and fitted over a

residual limb;

whereby said thermoformable tubular liner remains on said residual limb even as said residual limb shrinks during the day.

[c14] The method of claim 13, wherein said predetermined amount of time is about thirty minutes.

[c15] The method of claim 14, wherein said predetermined temperature is about ninety to one hundred degrees Celsius.

[c16] The method of claim 13, further comprising the step of preheating said positive cast in said oven for a predetermined amount of time at a predetermined temperature prior to said step of placing said thermoformable tubular liner over said positive cast.

[c17] The method of claim 16, wherein said predetermined amount of time of said preheating step is about two to three hours.

[c18] The method of claim 16, wherein said predetermined temperature of said preheating step is about ninety to one hundred degrees Celsius.

[c19] The method of claim 13, further comprising the step of formulating said thermoformable tubular liner by mixing triblock copolymers of the styrene, ethylene styrene type with mineral oils at a predetermined concentration.

[c20] The method of claim 19, wherein said predetermined concentration is about 200 to 400 parts of mineral oil per 100 parts of polymer.

[c21] The method of claim 13, further comprising the step of applying a fabric in overlying relation to an exterior surface of said liner.

[c22] The method of claim 21, wherein the step of applying the fabric is performed after the step of placing the thermoformable tubular liner over the positive cast and prior to the step of heating the positive cast and thermoformable tubular liner in the oven.

[c23] A method of making a thermoformable tubular liner for use in a prosthetic appliance, comprising the steps of:

preparing a negative cast from a patient's residual limb;
formulating a thermoformable tubular liner by mixing triblock copolymers of the styrene, ethylene styrene type with mineral oils at a predetermined concentration;
heating said thermoformable tubular liner in an oven for a predetermined amount of time at a predetermined temperature;
removing said thermoformable tubular liner from said oven and placing said thermoformable tubular liner over said positive cast and allowing said cast and thermoformable liner to cool to room temperature; and
removing said thermoformable tubular liner from said cast;
whereby an interior surface of said thermoformable tubular liner conforms to the shape of said positive cast.

[c24]

A method of making a thermoformable tubular liner for use in a prosthetic appliance, comprising the steps of:
preparing a negative cast from a patient's residual limb;
preparing a positive cast from said negative cast;
formulating a thermoformable tubular liner so that it has elastomeric qualities and exhibits a durometer of 40 to 60 on the "00" scale;
heating said thermoformable tubular liner in an oven for a predetermined amount of time at a predetermined temperature;
removing said thermoformable tubular liner from said oven and placing said thermoformable tubular liner over said positive cast and allowing said cast and thermoformable tubular liner to cool to room temperature; and
removing said thermoformable tubular liner from said positive cast;
whereby an interior surface of said thermoformable tubular liner conforms to the shape of said positive cast.